



WATER DIVISION
3900 MAIN STREET
RIVERSIDE, CA 92522
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WATER IMPROVEMENT PLAN CHECKLIST

This checklist should be considered as a guideline with acceptable minimums to be used for plan preparation by private engineers. Other methods of achieving the desired result can be used and are encouraged. The plans should be clear and concise. Proposed water facilities should be shown with a line weight, which will allow it to be easily distinguished from other facilities. Notes should not have lines running through them or use a font that is too small or too compressed to read. If in doubt on font size or line weight, refer to the sample plan included in the Public Utilities Water Division Engineer/Developer Design Packet. If the project requires a booster station, contact the Public Utilities Water Division (hereon referred to as "Water Division").

1. Plan Check BASE FEE is \$45 per lot with a minimum fee of \$450, which is required when the plans are submitted. Checks shall be made payable to the City of Riverside.
2. Use Water Division standard title block (see the Public Utilities Water Division Engineer/Developer Design Packet).
3. Plans shall be approved by a Registered Civil Engineer. Their signature, name, address, phone number and registration number to appear on all sheets. The plans shall also bear the seal or stamp of the engineer and the expiration date of the registration.
4. A City of Riverside Business Tax Certificate number, for the engineering office, with the expiration date shall be shown on the plans.
5. The City case or project number is required in the title block of all sheets.
6. The following note shall be on all sheets of the plans in the bottom right corner, above the title block: "NOTE: THIS SYSTEM SERVED BY THE _____ ZONE". The Plan Checker will provide the applicable "Pressure Zone" with the first plan check review comments.
7. Street names shall be checked against the final map or official City records.
8. Provide a signature block for Public Utilities Electric Division when overhead and/or underground utilities are involved (see the Public Utilities Water Division Engineer/Developer Design Packet).
9. Provide a signature block for the Water Division (see the Public Utilities Water Division Engineer/Developer Design Packet).
10. Provide signature blocks for all other utilities within the construction area on every sheet. If the project is located outside of the Riverside City Limits, contact the Water Division for the required signature blocks.
11. Provide Underground Service Alert (U.S.A.) notification.
12. Plan size shall be 24"x 36". Plans submitted for Water Division signature shall be printed on 4-mil mylar. Stick-on notes or details will not be acceptable.

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General Requirements

13. Upon notification by the Plan Checker, the engineer shall submit the final plans to the Water Division for signature.

COVER SHEET

14. Provide a Vicinity Map with north arrow.
15. Provide an Index Map with a scale of 1"= 100' showing the proposed improvements and Plan Index. If there is a water line in an easement, show the easement limits.
16. Provide a City approved Bench Mark. The B.M. shall be shown on all sheets.
17. Show all required General Notes.
18. Show Symbol Legend (see the Public Utilities Water Division Engineer/Developer Design Packet).
19. A "Bill of Materials" shall be provided (see the Public Utilities Water Division Engineer/ Developer Design Packet). Under the "Item List", the engineer shall list the applicable Water Division Standard Drawing Number.
20. Provide a signature block for the Fire Department when fire hydrants are required to be installed or relocated.

PLAN SHEETS

21. Plans shall be drawn at a scale of 1"= 40'.
22. Show a north arrow and scale.
23. Show existing improvements with dashed lines.
24. Show existing topo to 20 feet outside of right-of-way or easement.
25. Water mains shall be located 8 feet southerly or westerly of the street centerline. If the existing sewer is located on the southerly or westerly side of the street centerline, contact the Water Division.
26. Minimum horizontal distance between a waterline and a sewer line is 10 feet outside of pipe to the outside of pipe. In all cases, the engineer must adhere to the State of California, Department of Health Services Guidance Memo No. 2003-02: Guidance Criteria for the Separation of Water Mains and Non-Potable Pipelines.
27. Show proposed improvements with solid lines (see the Public Utilities Water Division Engineer/ Developer Design Packet).

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Plan Sheet Requirements

28. Show any existing pipelines, irrigation structures, power poles, trees, etc., in the right-of-way or easement which may affect the proposed waterline installation. Underground utilities shall be labeled with the size and type (S for sewer, SD for storm drain, etc.). Dimension the distance from the street centerline to the centerline of the utility.
29. Show dimensions from the street centerline to: curb face, right-of-way and all underground utilities.
30. Show lot lines, lot numbers, frontage distances and full pad elevations (i.e., 1020.5 not 20.5). Show addresses of lots for building permit projects.
31. Show bearings on all streets shown.
32. If the waterline is in an easement, show the limits of the easement. Easements are not to be centered on property lines. Minimum easement width is 20 feet. Under no circumstances will a water main be allowed within 10 feet of a building.
33. Stationing to conform with established stationing on City plans. Stationing shall be from left to right. No negative stationing. Refer to CWD-010-2 for typical pipeline stationing. If you have any questions or problems on stationing, contact the Water Division prior to design.
34. Check stationing on consecutive sheets. If more than one sheet or if you break the street and continue either below or on another sheet, show match lines at identical points. Give references to other sheets or to the continuation portion. Duplicate data, outside of the match lines, shall be fogged or shaded.
35. Label pipe size, pipe material, type of joints and, if applicable, pressure class.
36. Show stationing at the beginning and end of the pipeline and at the B.C. and E.C. of all curves. s.
37. Label and station all pipeline appurtenances. Appurtenances shall be identified by note.
38. New water mains in tracts shall end 2 feet from the tract boundary.
39. Show and check centerline and waterline curve data. Maximum pipeline deflection is 80 percent of the manufactures recommendations.
40. Show street and pipeline centerline intersection stationing equations.
41. 90° Tee connections shall be spaced with a minimum of 16 feet separation.
42. Fire hydrant spacing to be 350 feet in commercial and industrial areas. In residential areas, use 500 feet when the houses are equipped with fire sprinklers and 350 feet if the houses are not equipped with fire sprinklers.
43. Water valve spacing shall be every 500 feet with no more than 2 fire hydrants between the valves.
44. Calculate and show restrained joint lengths. Calculations shall be stamped and signed by the engineer and submitted with the plans at first plan check.

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Plan Sheet Requirements

45. Detail pipe crossings when water and either a sewer or storm drain are involved.
46. If a water main crosses a railroad track, the steel casing shall be shown with the beginning and ending stations. The casing shall be labeled with its size and thickness. Boring and receiving pits shall be shown, flagged and labeled. The engineer shall submit a copy of the permit issued by the railroad for the proposed pipeline crossing and the boring and jacking operation.

PROFILE

1. Profiles are not generally required for water mains under 12-inches in diameter. However, profiles will be required when the construction will involve numerous grade changes to avoid conflicts with other utilities or buried conflicts or when required by the Plan Checker. Profiles will also be required when the waterline will be in an unimproved area, easement or areas without curb and gutter.
2. Profiles shall be drawn at a horizontal scale of 1"= 40' with an appropriate vertical scale that matches the plan data.
3. Show datum elevations at both ends of the sheet.
4. Show stationing at bottom of the profile.
5. Show both horizontal and vertical scales.
6. Label and show the connection to the existing water main. The label should show the existing station and flowline elevation.
7. Pipelines under 12-inches in diameter shall be 36-inches below top of finished surface to top of pipe. Pipelines 12-inches and over shall be 48-inches below top of finished surface to top of pipe.
8. Show the existing surface profile, underground utility crossings and any topo which impacts the proposed waterline. These existing items shall be shown with dashed lines.
9. Show the proposed surface over the water main and flag the surface elevations every 100 feet. Note elevations to the nearest 0.1 feet.
10. Show all proposed underground utilities which will cross the proposed water main.
11. Show the proposed water improvements with solid lines.
12. Label and show stations and flowline elevations at the beginning and end of the waterline.
13. Label and show stations and flowline elevations at the B.C. and E.C. of curves.
14. Label and show stations and flowline elevations for all pipeline appurtenances.
15. Show pipe size, material and pressure class.
16. Show pipe slope using "S=0.0000" format.

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Profile Sheet Requirements

17. Flag and station pipe flowline at all grade breaks.
18. If restrained pipe joints are being used with unrestrained joints, show the limits of the restrained joints.
19. When the waterline runs under railroad tracks, show the size and limits of the steel casing. Stations and elevations shall be shown for each end of the casing along with the grade of the casing. Design of the steel casing shall be done in accordance with the welded steel casing standards required by the affected railroad company.